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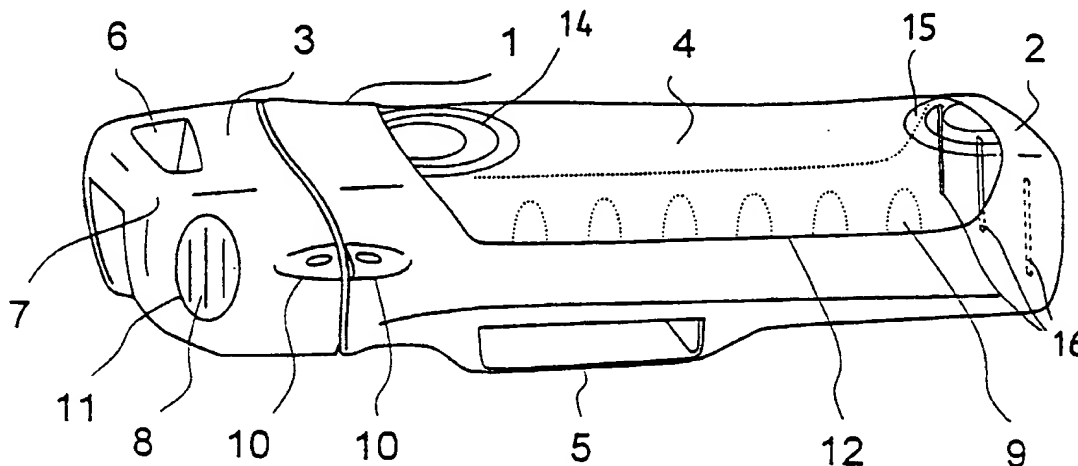
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(54) Title: MOBILE PHONE CASE



(57) Abstract

The invention concerns a mobile telephone case (1) comprising a rigid case body (2), which is mainly made of a substantially hard material, and a capping piece (3). The basic idea of the invention is that the case body (2) has an elongated shape and is provided with a substantially watertight openable and closeable capping piece (3) at its one end, and part of the shell of the case body consists of a transparent, relatively thin and elastic material (4) so as to permit the keys of a mobile telephone inside the case to be operated through the material (4).

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MOBILE PHONE CASE

The present invention relates to a case for a mobile telephone, as defined in the preamble of claim 1.

5 Versatile use of mobile telephones and the varying conditions of their use have given rise to a need for protecting them with suitable cases. Previously known are various leather cases provided with a thin plastic film for protecting the keys of the tele-
10 phone. The telephone can thus be used while it is in the case. However, a leather case does not protect the telephone against mechanical stress and moisture. The protection is not rain or splash resistant, to say nothing of the event of a telephone being dropped in
15 water.

 Previously known are also hard plastic cases comprising a box and its lid made of hard plastic material which effectively protect the telephone even against hard blows. A large hard lid covers the tele-
20 phone keys, so the telephone can only be used with the lid open. Due to the large lid and the difficulty of sealing it, the case is not watertight, only splash-tight at best.

 The object of the invention is to eliminate
25 the problems referred to above. A specific object of the invention is to disclose a new type of case for a mobile telephone that will both protect the telephone against mechanical stress and provide an effective protection against moisture, even water, while still
30 allowing continuous use of the telephone.

 As for the features characteristic of the mobile telephone case of the invention, reference is made to the claims.

 The mobile telephone case of the invention
35 comprises a rigid case body and a capping piece, both of which are mainly made of a substantially hard material, e.g. plastic. According to the invention, the

case body has an elongated shape and is provided with a substantially watertight openable and closeable capping piece at its one end. Moreover, part of the shell of the case body consists of a transparent, relatively thin and elastic material, e.g. plastic, so that the keys of a mobile telephone inside the case can be both seen and used through the elastic material. Water-tightness is achieved via a sufficiently tight fit between the body part and the capping piece of the case and suitable seals or equivalent structures.

The case is preferably manufactured from a plastic material suited for the purpose, e.g. polyethylene, polypropylene or equivalent, although other materials may be used.

The case containing the mobile telephone is preferably implemented as a floating structure such that when the case is afloat, the capping piece remains completely above the water surface. In this case, the case and especially the capping piece are so dimensioned that a sufficient air space is left around the aerial at the upper end of the telephone to achieve floating. Thus, the case will float in an upright or inclined position in water. As the area between the case and the capping piece remains above the water surface when the case is afloat, this ensures that the telephone will remain dry even if the case with the telephone should be left afloat for a longer time.

In an embodiment of the invention, the case comprises a strap and the case body comprises a strap holder. The strap holder is preferably a plate-like structure of a quadratic form and connected to the case body by its corners. Thus, the strap can be passed under the strap holder in two alternative cross-wise directions so that the mobile telephone case can be fastened to a suitable support either in the longitudinal or in the transverse direction of the

support. The strap preferably consists of a sticker band. The capping piece may also be provided with a through hole allowing the strap to be passed through it.

5 Using suitable straps and strap holders, the mobile telephone case can be fastened to a desired place, e.g. to the railing or mast of a boat, to a bicycle or a motor cycle, to an arm, leg, neck, belt or some other suitable place.

10 In an embodiment of the invention, the width and height of the hole extending through the capping piece have been so adapted that they correspond to the diameter and height of a crown cap as used in bottles. In addition, when the arc extending across the hole is
15 narrower than the part of the capping piece forming the bottom of the hole, the case and its capping piece can be used as a cap opener by pressing the bottom of the hole in the capping piece onto the crown cap. Thus, by placing the edge of the arc extending across
20 the hole under the edge of the crown cap, the cap can be opened very neatly by lightly turning the entire case. The hole extending through the capping piece may naturally be any shape and size. The hole may be e.g. of a size large enough to receive one or more fingers
25 through it, permitting the case to be e.g. carried, supported or spun around on a finger.

 The case body is preferably provided with thinned portions to allow a better audibility of voice through it. The thinned portion or portions may be in
30 the rigid and hard part of the case body and/or in the transparent and elastic material, which even so notoriously has a better sound transmissivity. The thinned portions preferably have soft and rounded edges between them and the rest of the material. In other
35 words, no sharp edges are used in conjunction with the thinned portions, and likewise no edges perpendicular to the surfaces to be thinned. In this way, a clear

and brilliant quality of the sound transmitted through the shell of the case, free of disturbing reverberations, is maintained.

5 In an embodiment of the invention, the bottom of the case body is provided with ribs or protrusions on its inside to keep the mobile telephone clear of and at a distance from the bottom. Thus, if for some reason a few drops of water should get inside the case, the water could not come into touch with the
10 electric contacts at the bottom of the telephone.

In an embodiment of the invention, the capping piece and possibly part of the case body is/are provided with a protective coat for damping the radiation emitted by the mobile telephone in the direction
15 of the user. The protective coat is suitably disposed near the aerial and between the telephone and the user. The protective coat may consist of an appropriate net or other coat with a radiation damping property or a low radiation transmissivity. However, the
20 protective coat preferably consists of a radiation reflecting surface that does not damp the radiation and thus does not impair the signal strength of the telephone but only directs the radiation from the aerial in a direction away from the user.

25 In an embodiment of the invention, the bottom of the case body is provided with a zone of reduced strength that allows a small piece of material to be removed from the bottom of the case in the area opposite to the electric connectors of the telephone inside it. This makes it possible to connect a charger
30 or a hands-free facility to the telephone while the latter is in the case. In addition, the case is provided with a plug corresponding to this aperture to permit the case to be tightly closed and made watertight again when the leads are removed.
35

The mobile telephone case of the invention has significant advantages as compared with prior art:

- the case effectively protects the telephone from mechanical stress while at the same time allowing unhampered use of the telephone,

5 - the case is watertight, keeping the telephone dry even in wet conditions,

- besides being watertight, the case is capable of floating with a telephone inside it, thus allowing completely safe use of a telephone in conjunction with sailing and other aquatic sports,

10 - the case can be easily fastened in versatile ways to various places on the user or the in environment of use,

- the case permits excellent audibility and use of the telephone even if the telephone is inside the case
15 all the time,

- in addition to the good properties regarding its use, the case is very elegant, giving a sporty, youthful and positive impression of its user, which has a great importance in commercial utilization and marketing of the product.
20

In the following, the invention will be described in detail with reference to the attached drawings, wherein

Fig. 1 presents a first embodiment of the mobile telephone case of the invention in a lateral top
25 view,

Fig. 2 presents a second embodiment of the mobile telephone case as seen from below, and

Fig. 3 presents a third embodiment of the mobile telephone case in a lateral top view.
30

The mobile telephone case 1 presented in Fig. 1 - 3 comprises a case body 2 and a capping piece 3. The case body is of an elongated shape and only one of its narrow ends is open, with a substantially watertight/splash-proof capping piece 3 partially overlapping the case body fitted at this end. The joint between the capping piece and the case body is provided
35

with sufficient seals to make the case watertight/splash-proof.

The case body is provided with two plate-like coupling elements 8 extending from its open end and comprising protrusions corresponding to holes 11 in the capping piece and fitted into them. The capping piece 3 can be opened by pulling it in a direction away from the case body and simultaneously pressing the coupling elements 8 visible through the holes 11 in the capping piece of the case body inward, thus releasing the capping piece and the case body from each other, i.e. releasing the interlocking between them. The capping piece can be closed by placing it in position on the end of the case body 2 so that the coupling elements 8 fixed to the case body go inside the capping piece and the protrusions are locked in the holes 11 in the capping piece when the capping piece is pressed against the case body.

The part of the case body shell on the front side of the case body 2 has been formed from a transparent, relatively thin and elastic material 4, e.g. plastic. Thus, the mobile telephone placed inside the case, i.e. its keys, can be operated/pressed through the plastic. Likewise, the display of the mobile telephone can be read through the plastic.

The case comprises protrusions, i.e. anti-slip elements 9 formed at the edges 12 of the long side of the transparent plastic part 4, which in the embodiments illustrated are located in the lateral parts of the case, to ensure that even a wet case can be firmly gripped by the user's hand.

In the embodiment of the case illustrated in Fig. 1, the case body is provided with thinned portions 14 and 15 at the upper and lower edges of its transparent part 4, i.e. the material 4 in these areas is thinner than elsewhere. This ensures a good audibility of sounds and speech from the telephone. In the

embodiment of the device presented in Fig. 3, the thinned portions 14 and 15 are located in the hard material on the front side of the case body 2, near the upper and lower edges of the transparent part.

5 On the inner surface of the bottom of the case body 2, as shown in Fig. 1, there are three parallel ribs or protrusions 16 having a height of e.g. a few millimeters from the bottom. Thus, the bottom of the mobile telephone can never directly touch the bot-
10 tom of the case body, where, regardless of watertightness, some water drops may sometimes appear.

 The bottom of the case body 2 may also be provided with a reduced-strength zone 18, as shown in Fig. 2, allowing easy removal of a piece of material
15 delimited by the reduced-strength zone from the bottom. In this way, an aperture is produced in the bottom, allowing the connection of required conductors to the mobile telephone. With the piece removed from the reduced-strength zone or a separate plug 19, the aper-
20 ture can be closed watertightly again after use.

 In the embodiment in Fig. 2, the back surface of the case body 2 comprises a strap holder 5, which consists of a substantially quadratic plate connected by its corners to the back of the case body so that
25 the plate remains at a small distance from the back surface. Thus, the strap holder provides openings in four directions so that a strap of suitable width and thickness can be passed through the strap holder in two alternative crosswise directions. The plate-like
30 part of the strap holder is provided with a hole 13, in which it is possible to attach a hook or an equivalent fastening mechanism. In addition, the plate-like part may be provided with any kind of thinned or reduced-strength areas or apertures. Using an ordinary
35 strap provided with e.g. a textile sticker or a buckle (not shown in the figure), the mobile telephone case can be fastened to a desired place, e.g. to the rail-

ing or mast of a boat, to the handle-bar or frame of a bicycle, to the telephone user's arm or leg or a similar place.

5 The capping piece 3 comprises a hole 6 extending through it, allowing the case to be alternatively fastened with a suitable strap passed through this hole to a desired place. The placement of the hole 6 in the capping piece is acentric so that a space 7 for the aerial of the mobile telephone is left
10 or formed inside the capping piece. That part of the interior surface of this space 7 which lies between the telephone user and the aerial when the telephone is being used is provided with a protective coat 17, i.e. a foil or skin reflecting the radiation emitted
15 by the aerial, as shown in Fig. 2. The hole 6 in the capping piece may be of any shape, e.g. the shape presented in Fig. 1 or 3.

Furthermore, both the case body 2 and the capping piece 3 are each provided with a lug 10. These
20 are small loops in which a chain or equivalent can be fastened to keep the capping piece connected to the case body when the capping piece is open. This ensures that the capping piece will not get lost.

In the foregoing, the invention has been de-
25 scribed by way of example with reference to the attached drawings while different embodiments of the invention are possible within the scope of the inventive idea defined in the following claims.

CLAIMS

1. Mobile telephone case (1), comprising a rigid case body (2) mainly made of a substantially hard material and a capping piece (3), characterized in that the case body (2) has an elongated shape and is provided with a substantially watertight openable and closeable capping piece (3) at its one end, and part of the shell of the case body consists of a transparent, relatively thin and elastic material (4) so as to permit the keys of a mobile telephone inside the case to be operated through the material (4).

2. Case as defined in claim 1, characterized in that the case (1) with a mobile telephone inside it is so designed that it is capable of floating in an upright position so that, when the case is afloat, the capping piece (3) remains completely above the water surface.

3. Case as defined in claim 1 or 2, characterized in that the case (1) comprises a strap and the case body (2) comprises a plate-like strap holder (5) connected by its corners to the case body (2) so that the strap can be passed under the strap holder in two alternative cross-wise directions.

4. Case as defined in claim 3, characterized in that the capping piece (3) comprises a hole (6) extending through it, allowing the strap to be passed through said hole.

5. Case as defined in claim 4, characterized in that the width and height of the hole (6) extending through the capping piece (3) have been so adapted that they correspond to the diameter and height of a crown cap as used in bottles to allow the hole (6) in the capping piece to be used as a cap opener.

6. Case as defined in claim 1, characterized in that the case body (2) comprises

thinned portions (14,15) to improve the audibility of voice and sounds through the case body.

7. Case as defined in claim 6, characterized in that the thinned portion (14, 15) is
5 in the elastic material (4).

8. Case as defined in claim 6, in that the thinned portion (14, 15) is in the hard material .

9. Case as defined in claim 1, characterized in that the bottom of the case body (2)
10 is provided with ribs or protrusions (16) on the inside to keep the mobile telephone and the electric connectors at its bottom clear of and at a distance from the bottom of the case.

10. Case as defined in claim 1, characterized
15 in that the capping piece (3) comprises a protective coat (17) for damping the radiation emitted by the mobile telephone in the direction of the user.

11. Case as defined in claim 1, characterized
20 in that the bottom of the case body (2) comprises a reduced-strength zone (18) to allow an aperture to be made in the bottom for conductors to be connected to the mobile telephone and that the case comprises a plug (19) corresponding to the aperture for closing the aperture.

Fig. 1

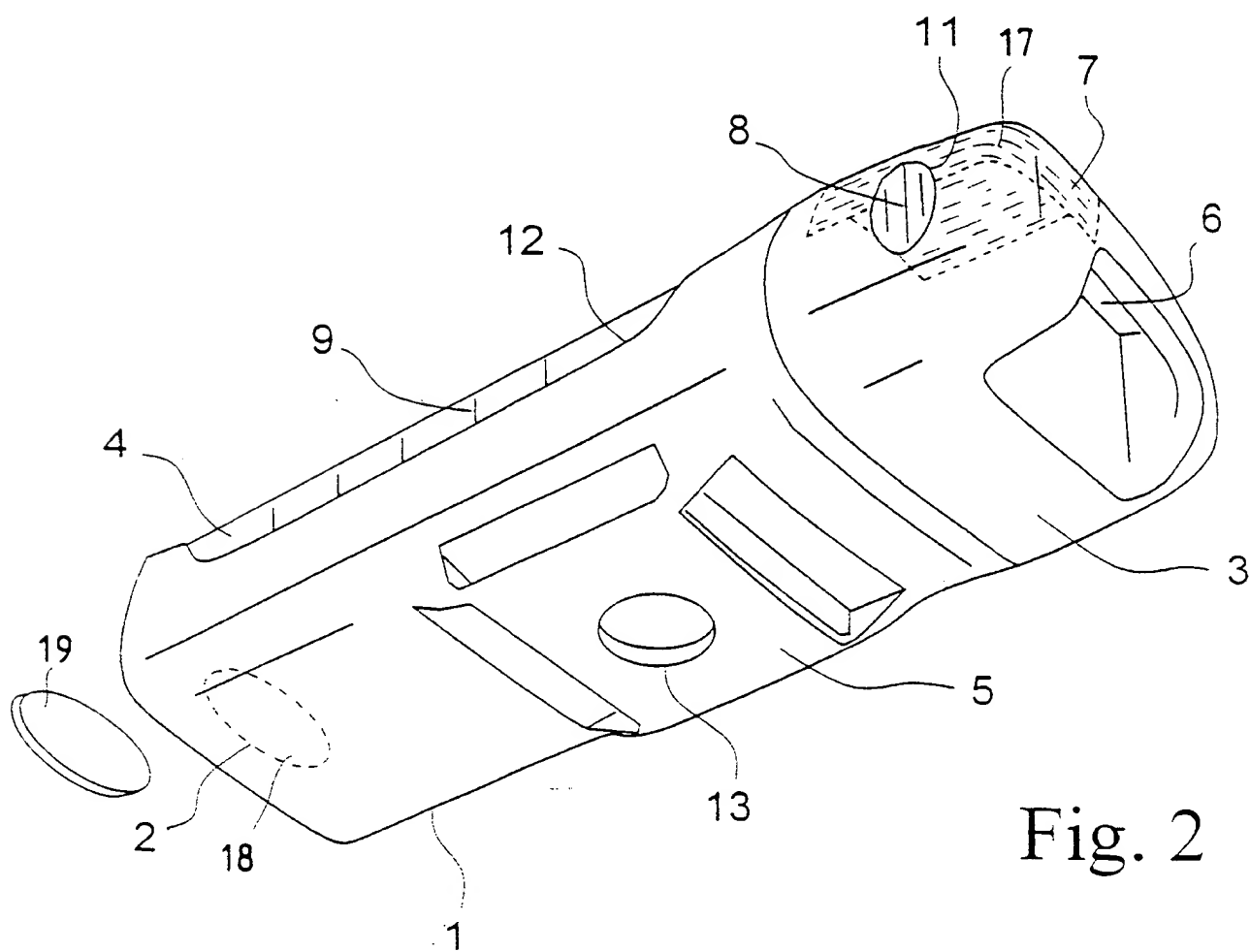
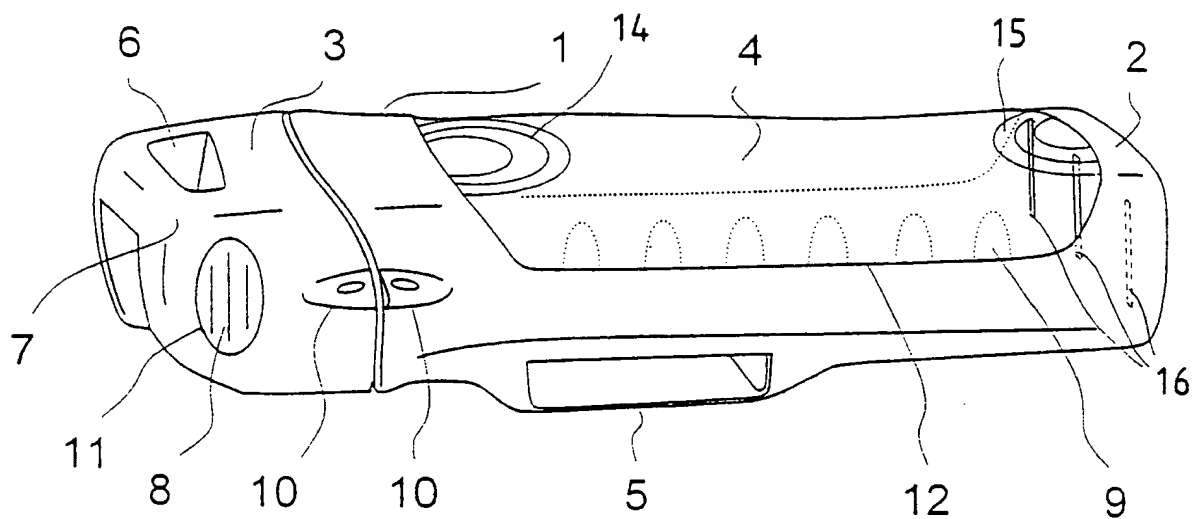


Fig. 2

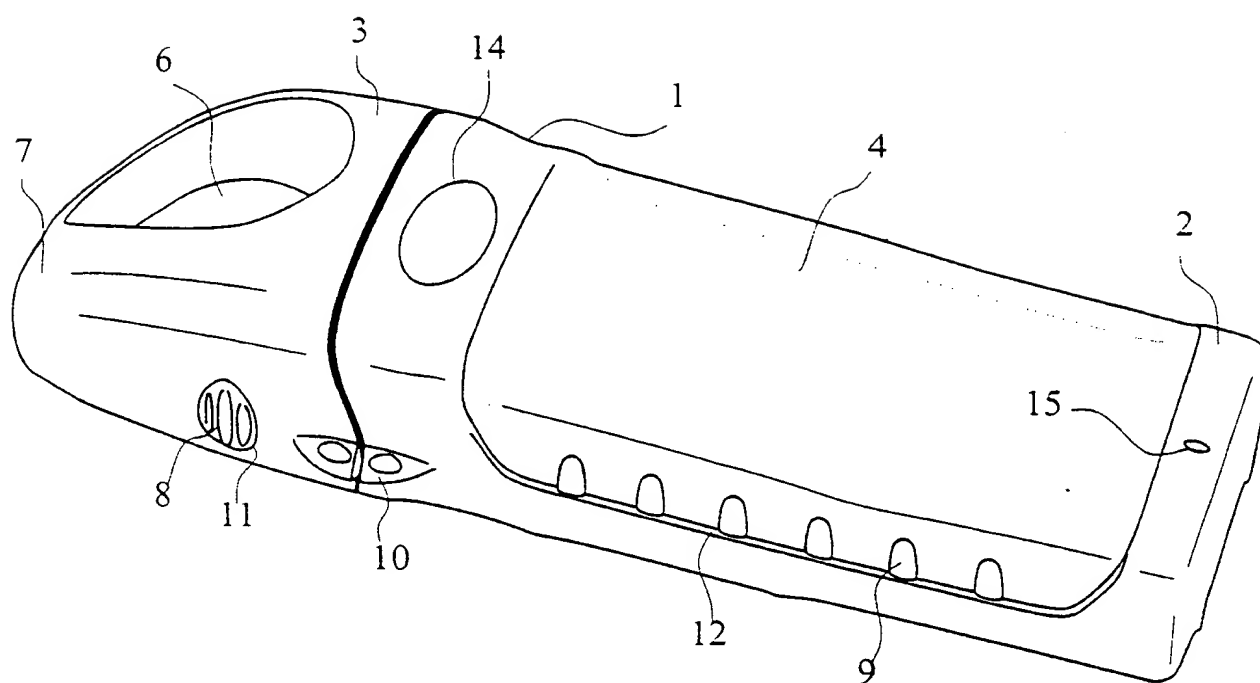


Fig. 3

INTERNATIONAL SEARCH REPORT

International application No.

PCT/FI 99/00705

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: H04M 1/18

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Minimum documentation searched (classification system followed by classification symbols)

IPC7: H04B, H04M, H04Q, H05K

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C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	DE 29612454 U1 (TESTO GMBH & CO.), 24 October 1996 (24.10.96), page 1, line 1 - page 6, line 25, figures 1-3 --	1-11
Y	DE 19711278 A1 (DEUTSCHE TELEKOM AG), 24 Sept 1998 (24.09.98), column 1, line 22 - column 3, line 4, figures 1-2 --	1-2,6-8
Y	US 5025921 A (BERNARD V. GASPARAITIS ET AL), 25 June 1991 (25.06.91), column 1, line 55 - column 2, line 58, figures 1-2 --	1,3-4,9

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5097997 A (ALEXANDER KIPNIS ET AL), 24 March 1992 (24.03.92), column 1, line 51 - column 3, line 34, figures 1-4 --	3-4
Y	DE 29811140 U1 (SCHRADER, JENS), 4 February 1999 (04.02.99), page 1, line 20 - page 4, line 31, figures 1-2 --	5
Y	DE 19602706 A1 (HÖLTER, HEINZ), 31 July 1997 (31.07.97), column 1, line 58 - column 2, line 36, figure 1, claims 1-2 --	10
Y	Patent Abstracts of Japan, abstract of JP 7-288567 A (CANON INC), 31 October 1995 (31.10.95)	11
A	--	1-10
Y	Patent Abstracts of Japan, abstract of JP 10-127329 A (WATT KK), 19 May 1998 (19.05.98)	11
A	--	1-10
A	Patent Abstracts of Japan, abstract of JP 8-125728 A (ARON KASEI CO LTD), 17 May 1996 (17.05.96) -- -----	1-11

INTERNATIONAL SEARCH REPORT
Information on patent family members

02/12/99

International application No.

PCT/FI 99/00705

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 29612454 U1	24/10/96	EP 0819916 A JP 10073685 A	21/01/98 17/03/98
DE 19711278 A1	24/09/98	NONE	
US 5025921 A	25/06/91	NONE	
US 5097997 A	24/03/92	NONE	
DE 29811140 U1	04/02/99	NONE	
DE 19602706 A1	31/07/97	NONE	

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